


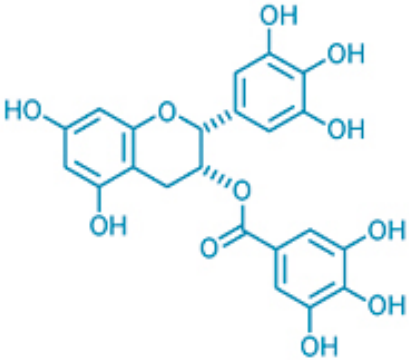
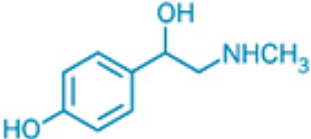
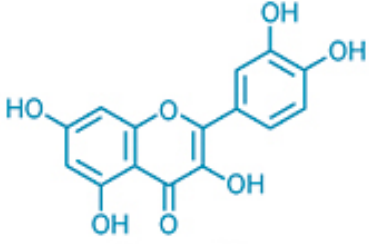
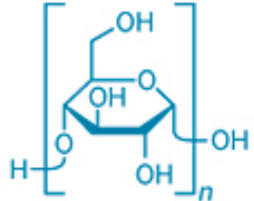
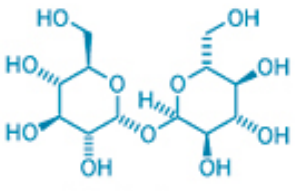







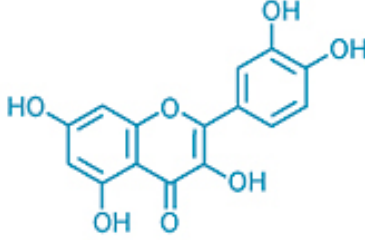
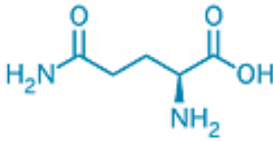




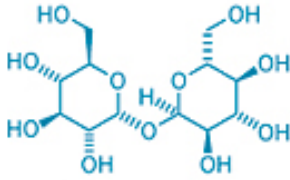
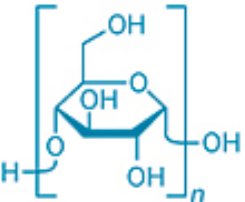
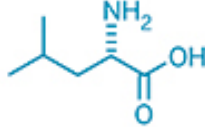
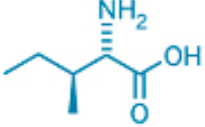
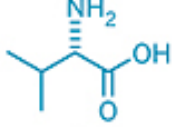
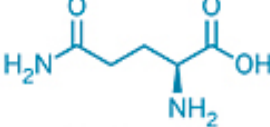


PURPOSE	ENERGY		
NUTRIENT TYPE	Vasodilators, thermogenic agents, herbal extracts	Fats	Carbohydrates
GOAL	Promote blood flow to muscles, increase resting metabolism, stimulate fat burning	Provide secondary source of energy	Build glycogen stores in muscles and liver
TIMING	Before workout	Regular diet	Up to one hour before workout, during exercise lasting more than 60 minutes
COMMON FOODS	Coffee, black and green tea, beets 	Fatty fish, meat, nuts, seeds 	Potatoes, pasta, oatmeal, dried fruit, bananas 
PRODUCT TYPES	Supplements	Food	Energy drinks, bars, gels
INGREDIENTS	Caffeine, <i>p</i> -synephrine, quercetin, epigallocatechin gallate		Glucose, trehalose, maltodextrin, cyclic dextrans
INGREDIENT STRUCTURES	 Epigallocatechin gallate	 <i>p</i>-Synephrine  Quercetin	 Maltodextrin, $n = 2-20$  Trehalose

PURPOSE	HYDRATION	
NUTRIENT TYPE	Liquids	Electrolytes
GOAL	Stay hydrated	Replenish electrolytes
TIMING	Before workout, every 15–20 minutes during exercise	During strenuous workout or exercise lasting longer than 60 minutes
COMMON FOODS	Water, fruit juice, coconut water 	Sports drinks, sodium 
PRODUCT TYPES	Sports drinks	Electrolyte tablets
INGREDIENTS		Sodium, potassium, magnesium

PURPOSE	IMMUNE FUNCTION				
NUTRIENT TYPE	Vitamins	Herbal extracts	Glutamine	Probiotics	Fish oil
GOAL	Improve bone health, immune function, muscle function	Provide antioxidants, reduce inflammation	Improve gut health, immune function	Improve gut health, immune function	Reduce inflammation, support immune function
TIMING	Diet	Diet	Postworkout, diet	Diet	Diet
COMMON FOODS	Sunlight and diet 	Dark-colored fruit and vegetables 	High-protein foods, parsley, spinach 	Fermented foods, yogurt 	Fatty fish 
PRODUCT TYPES	Supplements	Supplements	Supplements	Supplements	Supplements
INGREDIENTS	Vitamin D, C	Quercetin, green tea extracts, <i>Rhodiola rosea</i>	L-glutamine	Live bacteria	Omega-3
INGREDIENT STRUCTURES	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Quercetin</p> </div> <div style="text-align: center;">  <p>L-Glutamine</p> </div> </div>				

PURPOSE	RECOVERY				
NUTRIENT TYPE	Carbohydrates	Protein	Minerals	Glucosamine and chondroitin sulfate	Omega-3 fatty acids
GOAL	Replenish glycogen	Repair muscle	Support muscle health	Protect joints, alleviate pain	Alleviate muscle soreness
TIMING	Within 15–30 minutes after exercise	Within 15–30 minutes after exercise	Diet	Postworkout	Postworkout
COMMON FOODS	Chocolate milk, smoothies 	Nuts, seeds 	Red meat, leafy greens, beans, shellfish 	None	Fatty fish 
PRODUCT TYPES	Recovery drinks, bars, supplements	Protein powders	Supplements	Supplements	Supplements
INGREDIENTS	Glucose, trehalose, maltodextrin, cyclic dextrans	Whey and soy protein, branched-chain amino acids (leucine, isoleucine, and valine), L-Glutamine	Iron, zinc, calcium		
INGREDIENT STRUCTURES	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Trehalose</p> </div> <div style="text-align: center;">  <p>Maltodextrin, $n = 2-20$</p> </div> <div style="text-align: center;">  <p>L-Leucine</p> </div> <div style="text-align: center;">  <p>Isoleucine</p> </div> <div style="text-align: center;">  <p>L-Valine</p> </div> <div style="text-align: center;">  <p>L-Glutamine</p> </div> </div>				